PART A

IDENTIFICATION OF PRIORITY IMPAIRED and PRISTINE WATERS FOR THE WATER QUALITY VITAL SIGNS MONITORING COMPONENT

DRAFT

UNDER REVIEW AND DEVELOPEMENT

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The Clean Water Act Total Maximum Daily Load Program

The Clean Water Act requires the states to formally identify and publish all waters that do not meet water quality, or are not expected to meet water quality standards. The identification of these waters, officially defined as "water quality limited" is done through what has become to be know as "303d lists" after the section of the CWA where the requirement is contained. Waters may be listed if pollution exceeding water quality standards is caused by traditional point and nonpoint sources of pollution, as well as for nontraditional causes, such as atmospheric deposition.

Once the waters are listed the state, often in cooperation with other federal and state agencies, must bring them into compliance with water quality standards by developing a Total Maximum Daily Load (TMDL) for the pollutant(s) of concern. Simply stated, the TMDL is the "fix" for the polluted water and forms the foundation for a plan that establishes what the point and nonpoint contributions should be for a waterbody after natural background and a margin of safety have been determined. Pollution controls prescribed by the TMDL then may be implemented through the National Pollution Discharge Elimination Systems (NPDES) for point sources and the implementation of Best Management Practices (BMPs) for nonpoint sources of pollution. This process is particularly important from the standpoint of the National Park Service, because almost all of our pollution problems emanate outside of a Park's boundary. Working with states in implementing TMDLs represents our best opportunity for eliminating water quality problems because it ensures that all of the regulatory and financial resources available under the CWA can be directed to the problem. A full discussion of the 303d listing and TMDL program process can be found at the following EPA web site: http://www.epa.gov/owow/tmdl/

Park Waters on 303d Lists

Servicewide, waters in over 100 parks have been identified by states as having water quality impairments based on their 1998 303d lists. To assist networks in addressing water quality problem areas, WRD has identified parks in Table 1 with listed waters and the pollutants exceeding standards in 10 of the 12 networks (no listed waters were found for parks in the North Coast and Cascades and Central Alaska Networks) that will be funded in FY 01 and 02. This information was developed from the most current sources available. However, the process is dynamic, and states frequently update their lists based on new information. Therefore, networks and parks are advised to check with their respective states to insure that the most current and correct information is utilized. World Wide Web links are provided in Table 1 that will take the reader to each state's TMDL site where more detailed information about the specific program can be obtained.

Vital Signs Monitoring Plan Requirements for Quality Impaired Waters

Each Vital Sign Network should identify and discuss the status of each water that is quality impaired, and should address how each water will be monitored. Generally, long-term monitoring should be conducted in these waters to achieve the following objectives:

a. Gather information on the pollutants that exceed standards that will assist the park and the state to design specific pollution prevention or remediation programs through Total Maximum Daily Loads.

b. Determine whether the overall program goal of improved water quality is being achieved after the implementation of effective pollution control actions.

Each network-monitoring plan should identify the monitoring sites and the standard operating procedures that will be employed for field sampling and analytical work. Many of the water quality problems identified in Table 1, low dissolved oxygen or pH at Stone's River or Big South Fork National River for instance, relate very traditional and basic water quality measurements. In these cases, successful Vital Signs monitoring may consist of long-term or synoptic monitoring of the five "highly recommended" parameters discussed in Part C. Other problems are more complex, such as Wilson's Creek which is listed for unknown toxicity. In these cases, site-specific protocols may have to be designed and implemented by the networks.

In most cases the monitoring data and information will be used to determine compliance with water quality standards, Vital Signs Network personnel should coordinate with their state's water quality standards and monitoring personnel and determine if "Credible Data" requirements exists. Many states have incorporated this requirement into their environmental statutes to insure that water quality data collected for the purpose of determining compliance with water quality standards is done under appropriate Quality Assurance Project Plans (See Part B for a complete discussion). In most cases, adherence to the protocols and Standard Operating Procedures detailed in Part B of this guideline will satisfy state Credible Data requirements.

The Antidegradation Policy and Outstanding National Resource Waters

As part of their water quality standards, each state must develop, adopt, and implement an antidegradation policy as a key portion of their water quality standards. The EPA Water Quality Handbook (1994) requires the states, at a minimum, to include provisions for the management of water quality in accordance with the following "Tiers":

Tier 1: Includes the provisions to protect existing uses of water in the state, and it constitutes the absolute floor, or minimum level of protection, that must be provided all waters.

Tier 2: Applies to waters whose quality exceeds that necessary to protect "fishable/swimable" goals of the Clean Water Act. Management of these waters must attempt to keep them at existing quality. Degradation may be allowed if it cannot be

avoided for social or economic development reasons, but only after a public review has occurred.

Tier 3: Applies to Outstanding National Resource Waters (ONRWs) where ordinary use classifications and supporting criteria may not be sufficient or appropriate. These waters often considered the highest quality waters in the United States, but also offer special protection to waters of ecological significance that may be sensitive ecologically, but whose water quality may be poor when measured by traditional parameters. ONRWs are afforded the highest level of protection under the antidegradation policy. Existing Water quality must be protected and preserved, and only activities that cause only short-term and temporary degradation may be allowed.

Identification of Parks with ONRW Status or Other Special Protective Designation

National Parks encompass many of the most sensitive, pristine, and significant aquatic resources in the United States, and many have been afforded the protection of Tier 3 ONRW status, or a level recognized by EPA as Tier 2.5. WRD reviewed current water quality standards and regulations for states all states represented by the 12 networks to be funded in FY 01 and 02. Table 2 provides a listing of parks that are recognized by states in their water quality standards as exceptional or outstanding national or state resource waters in 6 of those 12 networks. Table 2 also provides a World Wide Web Link to the appropriate states water quality standards where the designation is identified.

Water quality management in these areas generally must aim for preserving and protecting existing water quality. A Tier 3 designation is not automatic or other protective designation is not statutorily automatic. Almost all states now require that areas so designated be administratively approved through a lengthy nomination and designation process. Some parks, such as Olympic National Park, clearly manage water resources that do in fact qualify for the Tier 3 designation, but do not have ONRW status primarily because the nomination procedure has not been initiated. Additionally, parks in Alaska, while not specifically identified as such, appear to be afforded ONRW status in the state regulations. Waters in these areas are also suitable candidates for Vital Signs water quality monitoring.

Vital Signs Monitoring Plan Requirements for ONRWs and other Pristine Waters

In many cases, the lack of specific data that may be used to define what “existing” water quality is in ONRWs is a hindrance to achieving the “protect and preserve” management goal for waters so designated. The results of long-term monitoring in these waters can effectively be used to answer the critical questions of what is the level of water quality we want to protect. Within their detailed study plans each Vital Sign Networks should identify and discuss the waters that are now have protective Tier 3 or similar protective designations as well as waters that may be candidates for designation. Monitoring plans should be adopted that will achieve the following two objectives:

a. Allow characterization of existing water quality and to identify changes or trends in water quality over time.

b. Identification specific existing or emerging water quality problems.

Networks should carefully select the parameters that will be monitored base don their knowledge of local ecosystem conditions and existing issues and threats to the waters. As a minimum, networks should initiate long-term monitoring for the five core parameters identified in Part C, and it is strongly recommended that long-term biomonitoring also be integrated into the monitoring plan design.

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Table 1 (Draft)
VITAL SIGNS PARKS WITH 303d WATERBODIES FOR FY2001 NETWORKS

NETWORK/PARK	WATERS IMPAIRED	STANDARDS EXCEEDED AND OR USES IMPAIRED	POLLUTANTS	WEB LINK
Heartlands Network				
Cuyahoga Valley NP	Cuyahoga River and tributaries	Aquatic Life and Fish Consumption	Metals, Priority Organics, Dissolved Oxygen, and Unknown toxicity	http://www.epa.state.oh.us/dsw/tmdl/303dnotc.html
Ozark NSR	Jacks Fork River	Water Contact Recreation	Bacteria	http://www.dnr.state.mo.us/deq/wpcp/wpc-tmdl.htm
Wilson's Creek NB	Wilson Creek	Aquatic Life	Unknown Toxicity	http://www.dnr.state.mo.us/deq/wpcp/wpc-tmdl.htm
Northeast Coastal and Barrier Network				
Fire Island NS	Great South Bay	Shellfishing Prohibition	Pathogens	http://www.dec.state.ny.us/website/dow/tmdl.html
Gateway NRA	Jamaca Bay	Bathing/Swimming	Pathogens	http://www.dec.state.ny.us/website/dow/tmdl.html
National Capital Network				
Antietam NB	Antietam Creek	Aquatic Life	Nutrients, Dissolved Oxygen	http://www.mde.state.md.us/tmdl/listindx.htm
Chesapeake and Ohio Canal NHP	Potomac River	Aquatic Life	Nutrients	http://www.mde.state.md.us/tmdl/listindx.htm
Harpers Ferry NHP	Shenandoah River Potomac river	Aquatic Life	Poly Chlorinated Biphenols, Nutrients	http://www.dep.state.wv.us/wr/OWR_Website/index.htm http://www.mde.state.md.us/tmdl/listindx.htm
Manassas NBP	Bull Run	Aquatic Life Support	Unknown	http://www.deq.state.va.us/tmdl/10yrsch.html
Monocacy NB	Monocacy Creek	Aquatic Life	Nutrients, Suspended Sediment	http://www.mde.state.md.us/tmdl/listindx.htm
National Capital Parks East	Potomac River	Aquatic Life	Nutrients	http://www.mde.state.md.us/tmdl/listindx.htm
Rock Creek Park	Rock Creek	Aquatic Life	Nutrients, Sediment	http://www.mde.state.md.us/tmdl/listindx.htm

Table 1 (Draft)
VITAL SIGNS PARKS WITH 303d WATERBODIES FOR FY2001

NETWORK/PARK	WATERS IMPAIRED	STANDARDS EXCEEDED AND/OR USES IMPAIRED	POLLUTANTS	WEB LINK
Cumberland Piedmont/Network				
Chickamauga and Chattanooga NMP	Lookout Creek	Fishing	Pathogens	http://www.ganet.org/dnr/environ/
Mammoth Cave NP	Green River	Recreation	Pathogens	http://water.nr.state.ky.us/303D/
Stones River NB	West Fork Stones River	Aquatic Life	Organic Enrichment, Low Dissolved Oxygen	http://www.state.tn.us/environment/wpc/index.html
Appalachian Highlands				
Big South Fork NR	Rock Creek Roaring Paunch Bear Creek North White Oak Creek White Oak Creek	Aquatic Life	Low pH Siltation (White Oak Creek)	http://water.nr.state.ky.us/303D/ http://www.state.tn.us/environment/wpc/index.html
Great Smoky Mountains NP	West Prong Little Pigeon Run	Aquatic Life and Recreation	Pathogens, Habitat Alteration and Siltation	http://www.state.tn.us/environment/wpc/index.html
Northern Colorado Plateau				
Capitol Reef NP	Fremont River	Agriculture	Total Dissolved Solids	http://www.eq.state.ut.us/eqwq/dwq_home.ssi
Zion NP	Left Fork North Creek	Agriculture	Total Dissolved Solids	http://www.eq.state.ut.us/eqwq/dwq_home.ssi
Greater Yellowstone Network				
Yellowstone N P	Soda Butte Creek Reese Creek	Aquatic Life, Cold Water Fisheries	Metals (Soda Butte Cr.) Dewatering (Reese Cr.)	http://www.deq.state.mt.us/ppa/mdm/303_d_list-draft.html
Bighorn Canyon NRA	Bighorn River Below Yellowtail Reservoir	Aquatic Life, Cold Water Fisheries	Nitrogen and Nutrients	http://www.deq.state.mt.us/ppa/mdm/303_d_list-draft.html

Table1 (Draft)
VITAL SIGNS PARKS WITH 303d WATERBODIES FOR FY2001 FUNDED NETWORKS

NETWORK/PARK	WATERS IMPAIRED	STANDARDS EXCEEDED OR USES IMPAIRED	POLLUTANTS	WEB LINK
Sonoran Desert Network				
Montezuma Castle NMON	Beaver Creek	Aquatic Life	Low Dissolved Oxygen	http://www.adeq.state.az.us/environ/water/assess/has.html#303d
Tuzigoot NMON	Verde River	Aquatic Life, Impairment of Wild and Scenic River	Turbidity	http://www.adeq.state.az.us/environ/water/assess/has.html#303d
San Francisco Bay Network				
Golden Gate NRA	Lagunitas Creek Rodeo Creek San Francisco Bay	Aquatic Life, Recreation	Nutrients, Pathogens, Siltation (Lagunitas Creek) Diazinon (Rodeo Creek) Numerous Metals and Organics (San Francisco Bay)	http://www.swrcb.ca.gov/tmdl/303d_lists.html
Point Reyes NS	Tomales Bay	Aquatic Life, Recreation	Metals, Nutrients, Pathogens, Siltation	http://www.swrcb.ca.gov/tmdl/303d_lists.html

Table 1 (Draft)
VITAL SIGNS PARKS WITH 303d WATERBODIES FOR FY2001 FUNDED NETWORKS

NETWORK/PARK	WATERS IMPAIRED	STANDARDS EXCEEDED OR USES IMPAIRED	POLLUTANTS	WEB LINK
Mediterranean Coast Network				
Santa Monica Mountains NRA	Malibu Beach	Recreation (Beach Closures), Fish Consumption Advisories	Bacteria, and DDT	http://www.swrcb.ca.gov/tmdl/303d_lists.html
	Malibu Lake	Aquatic Life, Fisheries	Organic enrichment and low Dissolved Oxygen, Copper, Chlordane contamination of fish tissue	
	Malibu Creek	Aquatic Life, Recreation, Aesthetics	Fish Barriers, Unnatural Scum and Foam, Bacteria, Trash, Nutrients	
	Topanga Canyon Channel	Aquatic Life	Lead	

Table 2 - State-Recognized Special Protection Waters (Draft)

NETWORK/PARK	WATERS DESIGNATED (IF SPECIFIED)	STATE CLASSIFICATION	URL FOR STATE WATER QUALITY STANDARDS AND REGULATIONS
Heartlands			
Buffalo National River	Buffalo River	Arkansas Extraordinary Resource Water	http://www.adeq.state.ar.us/regs/default.htm
Cuyahoga River NP		Ohio State Resource Waters	http://www.epa.state.oh.us/dsw/rules/3745-1.html
Ozark NSR	Current River Jacks Fork River Eleven Point River	Missouri Outstanding National Resource Waters	http://www.dnr.state.mo.us/deq/wpcp/wpcpub.htm#Clean Water Commission Regulations
Northeast Coastal and Barrier Network			
Cape Cod NS	Water in and adjacent to (within 1000 feet mean low water) Cape Cod NS	Massachusetts Outstanding Resource Water	http://www.state.ma.us/dep/brp/wm/wmpubs.htm
Cumberland Piedmont Network			
Mammoth Cave National Park	Underground Water System	Kentucky Outstanding National Resource Water	http://www.lrc.state.ky.us/regulations/401/005/030.htm
Appalachian Highlands Network			
Big South Fork National River and Recreation Area	Big South Fork of The Cumberland River	Kentucky Outstanding National Resource Water Tennessee Outstanding National Resource Water	http://www.lrc.state.ky.us/regulations/401/005/030.htm http://www.state.tn.us/sos/rules/1200/1200-04/1200-04.htm
Obed WSR	Obed River	Tennessee Outstanding National Resource Water (Conditional, pending results of water supply studies)	http://www.state.tn.us/sos/rules/1200/1200-04/1200-04.htm

Table 2 continued - State-Recognized Special Protection Waters

NETWORK/PARK	WATERS DESIGNATED (IF SPECIFIED)	STATE CLASSIFICATION	URL FOR STATE WATER QUALITY STANDARDS AND REGULATIONS
Appalachian Highlands (Con't)			
Great Smoky Mountain NP	Little River Abrams Creek West Prong Little Pigeon River Little Pigeon River	Tennessee Outstanding National Resource Waters	http://www.state.tn.us/sos/rules/1200/1200-04/1200-04.htm
Greater Yellowstone Network			
Grand Teton NP	All Waters within the Park boundary	Wyoming Class 1 Waters	http://soswy.state.wy.us/cgi-win/sscgi_3.exe?3925
Yellowstone National Park	All Waters within the Park Boundary	Wyoming Class 1 Waters	http://soswy.state.wy.us/cgi-win/sscgi_3.exe?3925
San Francisco Bay Network			
Point Reyes	Point Reyes Headland Preserve	California Area of Special Biological Significance	http://www.swrcb.ca.gov/rwqcb2/